

CLAIMS

1. A primer mechanism for an artillery piece mounted on a carrier, the mechanism comprising:

5 a body member for mounting the mechanism to the carrier, including means for a) interfacing with the carrier to position the feed mechanism on one side of the breech of the artillery piece, b) providing constrained movement of a movable tray member;

10 the tray member including rails for engagement on the body member and also providing for a housing with a channel in which a primer injector arm member moves;

a primer injector arm member including means for engaging a cam path surfaced member attached to the body member at one
15 end of the primer injector arm member that includes a linkage member that follows the cam path in a channel formed in the body member, the other end of the arm member has a cylindrical member that is pivotally attached, whereby rotary motion of the arm member causes linear injection of a primer cartridge
20 into a firing chamber; and

an extraction member attached to the body member, the extraction member allowing displacement of a spent primer cartridge out of a firing chamber.

25 2. The mechanism of claim 1, wherein the mechanism is a primer feed mechanism and further includes a magazine mounted on the tray member for housing a plurality of primers.

3. The mechanism of claim 1, wherein the extraction arm
30 member comprises a spring biased lever member that pivots from within a cavity in the body member and is actuated by

displacement of the tray member in relation to the body member.

4. The mechanism of claim 2, wherein the tray member
5 includes an integral receiver housing for mounting the magazine.

5. The mechanism of claim 4, wherein the magazine includes
guide members on sides of the magazine for sliding into the
10 receiver housing of the tray, the injector arm with an injector member pivotally attached thereto cooperatively engages and moves a fresh primer contained in the magazine upon movement of the tray member to a ready-to-fire position, the magazine includes a constant tension spring member housed
15 in an plate structure to provide indexing of the plurality of primers.

6. The mechanism of claim 1, wherein the tray member
includes a recessed portion that includes a firing pin member,
20 the recessed portion receives a firing mechanism that moves with the tray member.

7. The mechanism of claim 6, wherein the feed mechanism
further includes a firing mechanism.
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8. The mechanism of claim 7, wherein the primer firing
mechanism comprises a solenoid actuated firing mechanism.

9. The mechanism of claim 7, wherein the primer mechanism
30 comprises a mechanical actuated firing mechanism.

10. The mechanism of claim 9, wherein the mechanical firing mechanism comprises an in-line hammer member, a cup member, a yoke member, multiple ball bearings, at least one helical compression spring, a sleeve member, a case assembly with a special dual cam surface that cooperatively interfaces with a dual cam follower member, a pin member, and a pull lever, whereby the firing mechanism can be actuated by both direct and rotational pulling of the lever.

10 11. A cartridge feed mechanism for a machine with an injection chamber for receiving the cartridge, the mechanism comprising:

a magazine mounted on a tray member for housing a plurality of cartridges for insertion into the injection chamber, the magazine being a clip-like structure configured to receive a plurality of cartridges;

releasable mounting means for releasing the magazine from the machine;

20 cartridge injector means, including an injection arm means, for individually displacing unspent cartridges from the magazine into the injection chamber of the machine; and

cartridge extractor means, including a pivotal arm means.

12. The mechanism of claim 11, wherein the cartridge extractor means forms part of the body that includes a cavity for housing the cartridge extractor means for removing a spent cartridge from the injection chamber after use.

13. The mechanism of claim 11, wherein the releasable mounting means includes an integral receiver housing for mounting the magazine to the tray member.

14. The mechanism of claim 11 wherein the magazine includes an indexing means for translating the plurality of cartridges in response to a cartridge use and extraction cycles of operation.

15. The mechanism of claim 11 wherein the machine is an artillery piece and the cartridge is a primer, the artillery piece includes a breech block and wherein said mounting means mounts to a body member adjacent to the breech block and the tray member is mounted to the body member,

whereby the cartridge injector means and cartridge extractor means provide automatic primer loading after full breech closure and allow for spent primer cartridges to be extracted before opening of the breech for safety.

16. A magazine device comprising:

means for configurably mounting to a machine;

an in-line hollow structure configured to accept a plurality of cartridges for insertion into an injection chamber of a machine, the structure includes an opening at a first end of the structure for insertion of the cartridge into the machine; and

an indexing means having a plate member that is biased by a constant tensioning spring for providing constant compression of the cartridges within the structure.

17. The device of claim 16, wherein the structure further includes a opening at a second end of the structure, and a rod member attached to the indexing means that inserts through a slot on a side of the structure, whereby tensioning of the rod

member allows for insertion of fresh cartridges into the magazine.